

REMARKS

Claims 1-7 are pending.

Claims 1-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,014,202 to Van Allen et al. in view of U.S. Patent No. 6,510,722 to Ching et al. and U.S. Patent No. 4,306,442 to Schrock.

Summary of Interview

The undersigned thanks Examiner Yusuf for the courtesy of conducting a brief telephone interview on December 22, 2009. In the interview, the undersigned pointed out that simply modifying Van Allen's device to make the front face plate 21 integral with the side wall 5 would render the device impossible to assemble, for the reasons noted in the Response filed on November 4, 2009. Thus, to make Van Allen's device capable of being assembled, a further change would be necessary, namely to eliminate the step 6 (Figure 4) in the side wall 5 and the step 12 in the piston 7 (i.e., to make the inner surface of the side wall 5 and the outer surface of the piston 7 cylindrical). In the interview, the Examiner agreed with this assertion, but indicated that he believes Ching suggests that further change to Van Allen's device. As explained in greater detail below, Applicant submits Ching would not have suggested any of these modifications to Van Allen's device.

Response to Rejections

Independent Claims 1 and 2 both are directed to a head assembly for a swage press in which there is a front wall that is integral with the peripheral side wall; a rear wall is secured by fastening means to the peripheral side wall to at least partially close the rear face of the housing.

Additionally, in Claim 2, the rear wall cooperates with the piston means to define at least one working chamber for receiving high-pressure hydraulic fluid to effect movement of the piston toward the front wall.

Van Allen discloses a conventional swage press comprising a peripheral side wall 5, a front face plate 22, a rear stop plate 36, an internal tubular piston 7, a die holder 27 with radial die passages 29, and crimping dies 30 that are radially movable within the radial die passages 29. The piston 7 is axially moved by application of hydraulic fluid and urges the crimping dies 30 radially inwardly. The front face plate 21 is separate from the peripheral side wall 5 and is secured thereto by fasteners 23. Similarly the rear stop plate 36 is separate from the side wall 5 and is secured thereto by fasteners 33.

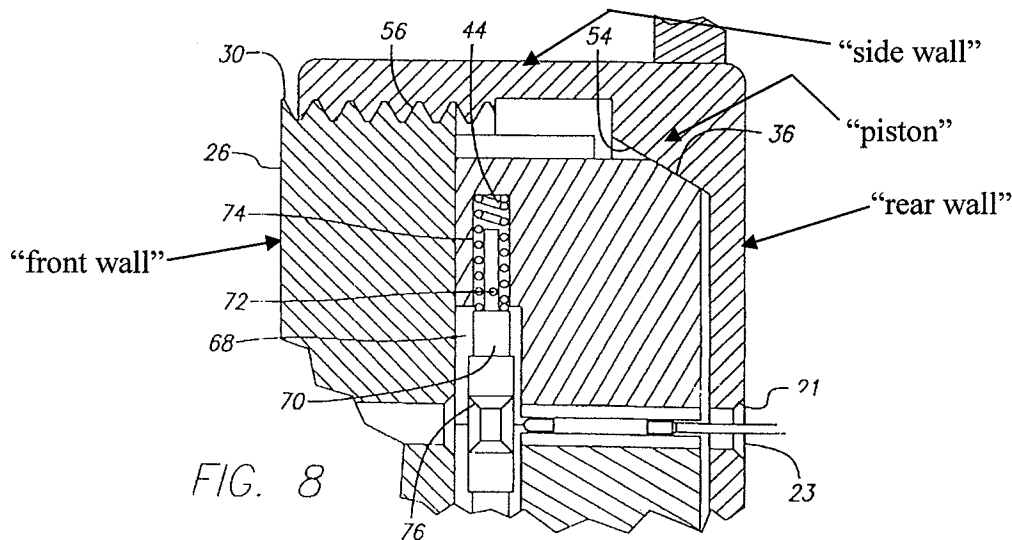
As the Office Action acknowledged, Van Allen fails to disclose a head assembly for a swage press wherein the front wall is integrally formed with the side wall as in Claims 1 and 2. Additionally, with respect to Claim 2, Van Allen fails to disclose a rear wall that cooperates with the piston means to define at least one working chamber for receiving high-pressure hydraulic fluid to effect movement of the piston toward the front wall. Instead, in Van Allen's device, pressurized hydraulic fluid acts on a chamfer or step 13 of the piston 7, as further described below.

Ching was cited as disclosing a radial crimping tool wherein the front wall is integrally formed with the side wall. The Office Action asserted it would have been obvious to modify Van Allen's head assembly to integrally form the front wall 21 and side wall 5 as suggested by Ching.

As indicated above, a person of ordinary skill in the art would not have been led to Ching to form Van Allen's side wall 5 and front wall 21 integrally with each other. Ching does not even disclose an integral front wall and side wall. To see this, it is first necessary to realize that the front wall (in the presently claimed invention and in Van Allen's device) is the wall toward which the piston moves in order to perform a crimping/swaging operation. Thus, in Van Allen, the front face plate 21 is the front wall. By analogy, Ching's front wall is actually formed by the cylindrical disk portion 26 of the inner hub 12. The outer hub 14 of Ching's device functions as the side wall, the piston, and the rear wall. The entire outer hub 14 moves axially when it is rotated, because of the threaded connection it has with the inner hub 12. The inclined surface 54

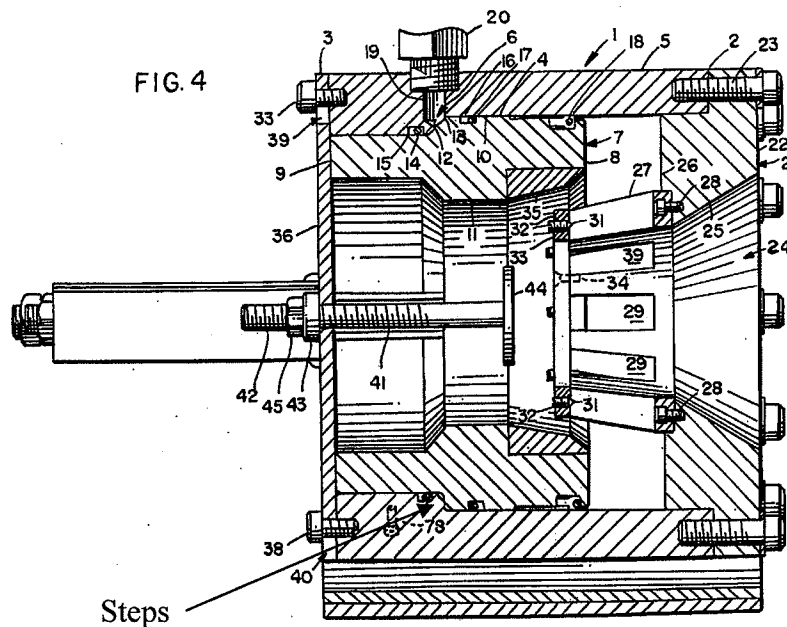
of the outer hub acts against the inclined surfaces 36 of the crimping dies 40 when the outer hub moves to the left in Figure 8 of Ching, thereby moving the dies 40 radially inwardly.

Thus, Ching does not disclose a head assembly having an integral side wall and front wall. The front wall 26 in Ching's device is formed *separately* from the "side wall" of the outer hub 14. The rear wall is integrally formed with the side wall:



Therefore, contrary to the Office Action, Ching does not disclose or suggest an integral front wall. Accordingly, even if Van Allen and Ching were combined somehow (and Applicant submits such combination would not have been made), the result would not be the head assembly having a front wall that is integral with the side wall.

A further reason Ching would not have suggested making Van Allen's front and side walls integral is that Van Allen's side wall 5 has a step 6, and the piston 7 similarly has a corresponding step 12, as seen in Figure 4:



Because of this stepped configuration, the piston 7 must be inserted into the housing from the right side of the side wall 5 in Figure 4. The piston 7 cannot be inserted into the housing from the left side in Figure 4 because the larger-diameter portion of the piston 7 is larger in diameter than the smaller-diameter portion of the stepped inner surface of the side wall 5. Once the piston 7 is inserted into the housing, the front plate 21 is fastened to the side wall 5 to capture the piston 7 within the housing. If the front plate 21 were integral with the side wall 5, it would be impossible to insert the piston 7 into the housing. For at least this reason, the proposed modification of Van Allen based on Ching would not have been made.

The Examiner agreed with the above reasoning, but asserted in the interview that Ching suggests the further change of eliminating the steps 6 and 12 in the side wall and piston, and with that change Van Allen's device could be assembled even when the front face plate 21 is integral with the side wall 5. However, Ching would not have suggested eliminating the steps 6, 12 because they are essential to the way Van Allen's device is actuated.

More particularly, the piston 7 is actuated by hydraulic fluid fed under pressure through conduit 19 and fitting 20. The pressurized hydraulic fluid acts on the chamfer (step) 13 of the

piston 7, thereby causing the piston to move forward (to the right in Figure 4; see col. 4 line 57 to col. 5 line 1). If the steps 6, 12 were eliminated, it would not be possible to actuate the piston 7 in this manner.

In summary, Ching does not even disclose an integral front wall. Furthermore, modifying Van Allen's device to have an integral front face plate 21 and side wall 5 would in turn require eliminating the steps 6, 12 in order to be able to assemble the device, but then the hydraulic actuation of the device would not work, and hence further extensive redesign would be required. Nothing in Ching suggests such a radical redesign of Van Allen's device.

For the above reasons, Applicant respectfully submits that Ching would not have suggested making Van Allen's front face plate 21 integral with the side wall 5, and therefore Claims 1-7 are patentable over the cited references.

Furthermore, with respect to Claim 2, neither Van Allen nor Ching discloses a device wherein a rear wall cooperates with the piston means to define at least one working chamber for receiving high-pressure hydraulic fluid to effect movement of the piston toward the front wall. As previously noted, Van Allen's device introduces hydraulic fluid into the region of the chamfer 13 of the piston. The rear wall 36 plays no role in forming a working chamber for the hydraulic fluid. As for Ching's device, it is not even operated by hydraulic fluid, but rather by manual force.

Therefore, the combination of Van Allen and Ching, even if it were made (and Applicant submits it would not have been made), still fails to disclose all of the limitations of Claim 2.

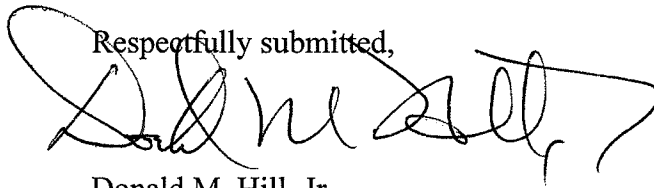
For at least the reasons given above, all pending claims are patentable over the cited references.

* * *

Conclusion

Based on the above remarks, it is submitted that the application is in condition for allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Donald M. Hill, Jr.", written over the text "Respectfully submitted,".

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